



Seed Regulatory and Testing Division Spring 2022



EDITOR'S NOTES

Spring is here and so is a new edition of the Items of Interest in Seed! The Seed Regulatory and Testing Division's (SRTD) Trueness-to-Variety trials have been planted in the field for spring. Agronomist Laura Berrios-Ortiz wrote about her observations of last year's eggplant trials.

Also in this edition, Seed Marketing Specialist Chi Trinh describes how different varieties should be labeled. Finally, Botanist Charlene Burton wrote an article on the differences between tall fescue and meadow fescue and how to identify them in grass mixtures.

On behalf of the SRTD staff, I hope you enjoy these articles and continue to find them informative.

Elizabeth Stewart, IOI Editor



RECENT AND UPCOMING ACTIVITIES

SRTD'S VISIT TO TENNESSEE ENHANCES COOPERATIVE SEED ACT AGREEMENTS: On March 16, 2022, S&T Deputy Administrator Ruihong Guo and SRTD director Ernest Allen met with the Tennessee Department of Agriculture Commissioner Charlie Hatcher and Deputy Commissioner Jeff Atkins to discuss Tennessee cooperative activities with AMS. The meeting was extremely productive with constructive discussions covering the agricultural economy in Tennessee, invasive noxious weed seeds, seed testing, and State and Federal seed regulatory processes. The meeting concluded with an agreement to strengthen the Tennessee seed market by increasing Federal Seed Act monitoring throughout the State.

SRTD ACCREDITED SEED PROGRAM UPDATES: This year, SRTD accredited new seed laboratories for the USDA Process Verified Program. To accommodate the added laboratories, Botanist Anitra Walker completed ISO Lead Auditor training and will now be able to audit for the program.

UPCOMING MEETINGS FOR SRTD:
- On June 7th, an SRTD representative will attend the AOSA/SCST Annual Meeting in Skokie, IL. The two organizations develop rules and procedures for seed testing and help standardize their interpretation. SRTD works closely with AOSA to ensure that the Federal Seed Act is applied uniformly in interstate seed shipments.

- On June 13th, an SRTD representative will attend the OECD Seed Schemes Annual Meeting in Tallinn, Estonia. The OECD Seed Schemes facilitates the trade of certified seed between nations by developing technical standards required by participating nations. USDA AMS serves as the voting representative for the U.S. government and seed industry at the annual meeting.

TRUENESS-TO-VARIETY EGGPLANT VARIATIONS

The principles of variety selection began when people first chose to save seeds from plants with desired traits. Today, variety choices in agriculture are numerous, with selected characteristics that benefit farmers and consumers.

Trueness-To-Variety (TTV) field testing is conducted to determine if seed lots are properly labeled with the correct variety, which is required by the Federal Seed Act and State seed laws. The primary focus of this testing is to identify seed lots which bear the wrong variety name on the label, or which have significant levels of off-type plants within the lot.

Occasionally, there is a curious occurrence noticed in TTV testing; spontaneous trait variation can occur in some plant varieties. These random occurrences can be seen in the field.

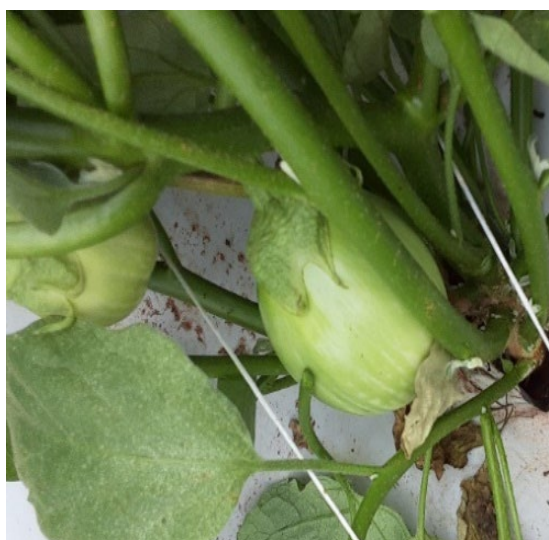
Charles Darwin noted in *The Origin of Species* that spontaneous mutations occur more often in cultivated plants than in wild plants. He referred to them as sporting plants. Darwin wrote how cultivated varieties will suddenly show a different trait, such as a different flower color, or a different single grain size. He attributed this phenomenon to environmental factors, such as light and temperature, but did not consider genetic factors.

However, a 2016 study found that spontaneous mutations in the eggplant variety Black Beauty may be a hereditary gene (Gisberth *et al.*, 2016). Black Beauty is an eggplant variety characterized by its deep purple color (Ells, 2020). The mutation

causes a lack of anthocyanin, which is the pigment in eggplant that gives it a purple color.

During SRTD's 2021 TTV trials, this rare mutation was observed. One plant out of 49 Black Beauty plants lacked anthocyanin and produced a green fruit. SRTD determined that while the plant lacked the purple color it was still true to the variety and the lot was correctly labeled.

In TTV testing, the possibility of environmental or genetic factors that could affect the character traits of a variety are always considered.



Article was written by Agronomist Laura Berrios-Ortiz. For more information regarding this article, contact Seed Laboratory Supervisor Todd Erickson (704) 810-8877; todd.erickson@usda.gov.

References:

- ELLS, J.E. revised by Newman, S. (2020) Gardening Series Fruits and Vegetables: Peppers and Eggplant Fact Sheet 7.616. *Colorado State University Extension*
- Gisberth, C., Dumm J.M., Prohens J., Vilanova S., Stommel J.R. (2016). A Spontaneous Eggplant (*Solanum melongena* L.) Color Mutant Conditions Anthocyanin-free Fruit Pigmentation. *American Society for Horticulture Science*, 51(7).

VARIETY LABELING UNDER THE FEDERAL SEED ACT

Every year, new varieties of agricultural and vegetable seed are released into the U.S. marketplace. The Federal Seed Act (FSA) regulates agricultural and vegetable seeds shipped in interstate commerce.

What is a variety?

FSA section 101(a) (12) defines the term “variety” as a subdivision of a kind characterized by growth, plant, fruit, seed, or other characters by which it can be differentiated from other varieties of the same kind.

How should a variety be labeled under the FSA requirements?

Since a variety is unique to the kind of seed, it shall be considered as an individual component when it is on a label. According to FSA section 201(a)(1), any variety of agricultural seed consisting of more than five percent of the total percentage by weight will be included on the label. If any one kind or variety of seed present in excess of five percent is “hybrid” seed, it shall be designated “hybrid” on the label.

FSA section 201(b) addresses vegetable seeds which are required to be labeled with a variety name. If two or more varieties are present, the label needs to show the percentage of each variety. If one or more kinds or varieties named on the label are “hybrid” seed, it shall be so designated on the label.

For more information regarding this article, contact Seed Marketing Specialist Lan Chi Trinh, (704) 810-7272; Lan-ChiN.Trinh@usda.gov

THE IDENTIFICATION OF TALL FESCUE VERSUS MEADOW FESCUE

Undesirable grass seeds are restricted noxious-weed seeds when found in lawn, turf grass, and mixtures of these kinds. The States of Delaware, Maryland, New Hampshire, New Jersey, Pennsylvania, Virginia, and West Virginia have designated 10 undesirable grass seeds. Two of these seeds, tall fescue and meadow fescue, can be difficult to identify when found together.



Festuca arundinacea (tall fescue):

- Shape: widest below the middle
- Lemma: coarse and granular; short stiff hairs on nerves, margins, and over entire surface
- Palea: coarse and granular
- Awn: usually present
- Color: dark tan
- Rachilla: round and slender

Festuca pratensis (meadow fescue):

- Shape: widest through the middle
- Lemma: smooth as if glazed; occasional short hairs in center nerve near apex (top)
- Palea: smooth and lustrous
- Awn: mostly lacking
- Color: light to dark tan
- Rachilla: stout and flattened; somewhat rounded

Characteristics of both species:

- Shape: broadly elliptic
- Palea: hairs on keels, short, fine, and closely spaced
- Rachilla: stands away from palea
- Callus: wide vertically; thick



These characteristics will help the analyst to identify each species when found as a contaminant in lawn and turf grass or mixtures of these kinds.

For more information regarding this article, contact Botanist Charlene Burton (704) 810-8880; charlene.burton@usda.gov

Notice the difference in the lemma and palea. The lemma and palea of the tall fescue are coarse and granular. The meadow fescue lemma and palea are smooth and lustrous. The lemma of the tall fescue can have short stiff hairs on the nerves, margins, or over the entire surface. Both tall fescue and meadow fescue have hairs on the keels of the palea.

There is also a difference in the rachilla. The rachilla of the tall fescue is round and slender compared to the rachilla of the meadow fescue which is somewhat rounded but mostly stout and flattened. In both seeds the rachilla stands away from the palea.

CALENDAR OF EVENTS

- Association of Official Seed Analysts/ Society of Commercial Seed Technologist (AOSA/ SCST) Annual Meeting – Skokie, IL
June 4-9, 2022
- Organization for Economic Cooperation and Development (OECD) Seed Schemes Annual Meeting – Tallinn, Estonia
June 13-17, 2022
- Association of Official Seed Certifying Agencies (AOSCA) Annual Meeting – Wenatchee, WA
June 19-22, 2022
- AASCO Annual Meeting –Geneva, NY
July 11-15, 2022
- SRTD Seed School – Gastonia, NC
August 15-17, 2022

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